AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for avoiding inter-layer inter-symbol interference, ~~characterised by the steps of~~comprising:

using a diagonally layered multi-antenna transmission ~~utilising~~ utilizing a number of multiple layers. each layer including a different sequence of symbols;

dividing the different sequence of symbols of each layer into a first number of multiple sub-sequences ~~parts of layers~~, the first number being a multiple of the number of multiple layers;

associating the ~~parts of layers~~ multiple sub-sequences to a second number of transmit antennas such that all antennas transmit an equal number of ~~parts of~~ sub-sequences of each layer; and

inserting known symbols between each of the multiple sub-sequences ~~the parts~~ to each transmit antenna, a number of known symbols being at least as many as a number of symbol spaced channel taps minus one seen by a receiver to avoid inter-layer inter-symbol interference.

2. (Currently Amended) The method according to claim 1, ~~characterised by the further step of~~further comprising: inserting the number of known symbols at the border between the multiple sub-sequences of the different layers with at least as many as an expected channel memory for a channel observed by a receiver.

3. (Currently Amended) The method according to claim 2, ~~characterised by the further step of~~further comprising: inserting the known symbols at the borders between the different layers and also using inserted known symbols also for purposes such as for instance channel estimation or similar purposes.

4. (Currently Amended) The method according to claim 3, ~~characterised by the further step of~~further comprising: letting the first number of multiple sub-sequences of the layers having an equal size.

5. (Currently Amended) The method according to claim 4, ~~characterised by the further step of~~further comprising: making the known symbols to constitute a training sequence.

6. (Currently Amended) The method according to claim 5, ~~characterised by the further steps of:~~wherein in a system having a first and a second transmit antenna, and a burst structure containing a training sequence in the middle of a burst and with data fields to either side of the training sequence, the method further comprises: transmitting a layer one in a left data field and a layer two in a right data field from the first antenna, while transmitting from the second antenna the layer two in the left data field and the layer one in the right data field and from each antenna separating the two layers by the known training sequence to thereby avoid inter-layer inter-symbol interference.

7. (Currently Amended) The method according to claim 1, ~~characterised by the further step of~~further comprising: adaptively changing a transmitter algorithm used between layering over one or several antennas depending on a modulation scheme, and/or a code rate of an outer channel code.

8. Canceled.

9. (Currently Amended) The method according to claim 1, ~~characterised by the further steps of~~further comprising:

dividing a transmit antenna array into sub-sets of transmit antennas, each sub-set containing an arbitrary number of transmit antennas;

dividing the layers into sub-sets of layers, each sub-set of layers corresponding to a sub-set of transmit antennas;

diagonally layering the layers within a sub-set, while not permitting layering across different transmit antenna sub-sets.

10. (Currently Amended) The method according to claim 1, ~~characterised by the further step of~~further comprising: setting up a transmit antenna arrangement constituting an even number of individual antennas, the transmit antenna array being divided into sub-sets of two individual antennas, whereby the layers within a sub-set data are diagonally layered, while not permitting layering across different antenna sub-sets.

11. (Currently Amended) A system for avoiding inter-layer inter-symbol interference, ~~characterised in that~~comprising:

a diagonally layered multi-antenna transmission ~~is used utilising~~ apparatus including a number of multiple layers, each layer including a different sequence of symbols;

means for dividing the different sequence of symbols of each layer ~~are divided~~ into a first number of ~~parts~~ multiple sub-sequences of layers, the first number being a multiple of the number of multiple layers;

means for associating the multiple sub-sequences ~~parts~~ of layers ~~are associated to~~ with a second number of transmit antennas such that all antennas are configured to transmit an equal number of ~~parts~~ multiple sub-sequences of each layer;

means for inserting known symbols ~~are inserted~~ at the borders between the ~~parts~~ multiple sub-sequences to each transmit antenna~~.~~, a number of known symbols being at least as many as a number of symbol--spaced channel taps minus one as seen by a receiver to avoid inter-symbol interference between the layers.

12. (Currently Amended) The system according to claim 11, ~~characterised in that~~ wherein the number of known symbols inserted at the border between the different layers is at least as many as an expected channel memory for a channel observed by a receiver.

13. (Currently Amended) The system according to claim 12, ~~characterised in that~~ wherein the known symbols~~, which are~~ inserted at the borders between the different layers can also be used for ~~purposes such as for instance~~ channel estimation or ~~similar~~ other desired purposes.

14. (Currently Amended) The system according to claim 13, ~~characterised in that~~ wherein the first number of ~~sub-set~~ parts of layers have an equal size.

15. (Currently Amended) The system according to claim 14, ~~characterised in that~~ wherein the known symbols constitute a training sequence.

16. (Currently Amended) The system according to claim 15, ~~characterised in that,~~wherein for a system having a first and a second transmit antenna, and a burst structure containing a training sequence in the middle of a burst and with data fields to either side of the training sequence, a layer one is transmitted in a left data field and a layer two is transmitted in a right data field of the first antenna, while for the second antenna the layer two is transmitted in the left data field and the layer one is transmitted in the right data field thereby separating the two layers by the known training sequence to thereby avoid inter-layer inter-symbol interference.

17. (Currently Amended) The system according to claim 11, ~~characterised in that~~ further comprising a transmitter ~~used may~~ configured to adaptively change between layering over one or several antennas depending on a modulation scheme~~,~~ and/or a code rate of an outer channel code.

18. Canceled.

19. (Currently Amended) The system according to claim 11, ~~characterised in that~~further comprising:

means for dividing a transmit antenna array ~~is divided~~ into sub-sets of transmit antennas, each sub-set containing an arbitrary number of transmit antennas,~~;~~ where

the layers are divided into sub-sets of layers, each sub-set of layers corresponding to a sub-set of transmit antennas,~~;~~ and

the layers within a sub-set are diagonally layered while not permitting layering across different transmit antenna sub-sets.

20. (Currently Amended) The system according to claim 11, ~~characterised in that~~ further comprising a transmit antenna arrangement ~~is set up constituting~~ including an even number of individual antennas, the transmit antenna ~~array~~ arrangement being divided into sub-sets of two individual antennas, ~~whereby~~ where the layers within a sub-set data are diagonally layered, while there is no layering across different antenna sub-sets.

21. (New) The method according to claim 1, wherein each sequence of symbols is divided by separating the symbols into the first number of ~~parts~~ multiple sub-sequences and introducing the known symbols at the border between the ~~parts~~ multiple sub-sequences of the different layers.

22. (New) The system according to claim 1, wherein the means for dividing is configured to divide each sequence of symbols by separating the symbols into the first number of ~~parts~~ multiple sub-sequences and introducing the known symbols at the border between the ~~parts~~ multiple sub-sequences of the different layers.

23. (New) Apparatus for avoiding inter-layer inter-symbol interference, comprising:

a diagonally-layered, multi-antenna transmitter including a number of multiple layers, each layer including a different sequence of symbols,

wherein the different sequence of symbols corresponding to each layer is divided into a first number of multiple sub-sequences of layers, the first number of multiple sub-sequences of layers being a multiple of the number of multiple layers,

electronic circuitry configured to:

associate the multiple sub-sequences of layers to a second number of transmit antennas such that all antennas transmit an equal number of multiple sub-sequences of each layer, and

insert known symbols between the parts to each transmit antenna, a number of known symbols being at least as many as a number of symbol spaced channel taps minus one seen by a receiver to avoid inter-layer inter-symbol interference.

24. (New) The apparatus according to claim 23, wherein the electronic circuitry is configured to insert the number of known symbols at a border between the multiple sub-sequences of the different layers.

25. (New) The apparatus according to claim 24, wherein the electronic circuitry is configured to insert the known symbols at the borders between the different layers.

26. (New) The apparatus according to claim 23, wherein the known symbols constitute a training sequence.

27. (New) The apparatus according to claim 26, wherein the diagonally-layered, multi-antenna transmitter includes a first antenna and a second transmit antenna,

wherein a data transmission format includes a burst structure having a training sequence in the middle of a burst and with data fields to either side of the training sequence,

wherein the diagonally-layered, multi-antenna transmitter is configured to transmit a first layer in a left data field and a second layer in a right data field from the first antenna and to transmit from the second antenna the second layer in the left data field and the first layer in the right data field such that the first and second layers transmitted from each antenna are separated by the known training sequence to avoid inter-layer inter-symbol interference.

28. (New) The apparatus according to claim 23, wherein the electronic circuitry is configured to:

divide a transmit antenna array into sub-sets of transmit antennas, each sub-set containing a number of transmit antennas;

divide the layers into sub-sets of layers, each sub-set of layers corresponding to a sub-set of transmit antennas; and

diagonally layer the layers within a sub-set without layering across different transmit antenna sub-sets.

29. (New) The apparatus according to claim 23, wherein the electronic circuitry is configured to divide each sequence of symbols by separating the symbols into the first number of multiple sub-sequences of layers and introducing the known symbols at the border between the multiple sub-sequences of the different layers.